

REMARKS

Reconsideration and withdrawal of the rejection set forth in the above-mentioned Official Action in view of the foregoing amendments and the following remarks are respectfully requested.

Claims 1-14 remain pending in the application, with Claims 2 and 7-14 being withdrawn from consideration. Of the remaining claims, Claim 1 is the sole independent claim and has been amended herein.

Claims 1 and 3-6 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,137,535 (Meyers) in view of U.S. Patent Application Publication No. 2002/0176037 (Li). This rejection is respectfully traversed.

As recited in independent Claim 1, the present invention relates to an image pickup apparatus including a plurality of pixel areas and a plurality of microlenses. The plurality of pixel areas are arranged on a single semiconductor chip to be adjacent to each other through a predetermined space, each of the pixel areas has pixels arranged two-dimensionally and each of the pixels has a photoelectric conversion unit. The plurality of microlenses form light into images. The plurality of microlenses are arranged on the plurality of pixel areas corresponding to each of the pixels and arranged on the predetermined spaces between the plurality of pixel areas. Light incident on the predetermined spaces is focused downward in the predetermined spaces by the microlenses arranged on the predetermined spaces while light incident on the pixel areas is focused downward to the photoelectric conversion units by the microlenses arranged on the plurality of pixel areas.

Meyers relates to a compact digital camera having a lenslet array. The lenslet array is formed over sub-groups of photodetectors formed into a photosensitive array. Meyers may also disclose an opaque mask that fills the areas between the lenslets to prevent light that would by-pass the lenslets from reaching the photosensitive array. Referring to Figures 2 and 9, Applicants submit that the lenslet array 10 extends into a peripheral portion of a pixel area and focuses light into the pixel area, which contains the photosensitive array (note the incident light rays in Figure 2). It is respectfully submitted, however, that Meyers does not in any manner suggest or disclose the feature of Claim 1 that light incident on the predetermined spaces is focused downward in the predetermined spaces by microlenses arranged on the predetermined spaces while light incident on the pixel areas is focused downward to the photoelectric conversion units by the microlenses arranged on the plurality of pixel areas.

Thus, Meyers fails to disclose or suggest important features of the present invention recited in the independent claim.

Li is directed to a method of creating a microlens. Light rays pass through microlenses 304, 308, 312 and are incident upon sensors 320, 324, 328. Since Li does not discuss spaces between the plurality of pixel areas, Li also fails to disclose or suggest that light incident on the predetermined spaces is focused downward in the predetermined spaces by microlenses arranged on the predetermined spaces, as is recited in independent Claim 1. Thus, Li fails to remedy the deficiencies of Meyers noted above with respect to independent Claim 1.

Thus, independent Claim 1 is patentable over the citations of record.


Reconsideration and withdrawal of the § 103 rejection are respectfully requested.

For the foregoing reasons, Applicants respectfully submit that the present invention is patentably defined by independent Claim 1. Dependent Claims 3-6 are also allowable, in their own right, for defining features of the present invention in addition to those recited in their respective independent claims.

Applicants submit that the present application is in condition for allowance. Favorable reconsideration, withdrawal of the rejection set forth in the above-noted Office Action, and an early Notice of Allowability are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,


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